

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

19 AUG 2004  
WIPO PCT

Applicant's or agent's file reference <b>PEB372</b>	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. <b>PCT/JP 03 / 14500</b>	International filing date (day/month/year) <b>14.11.2003</b>	Priority date (day/month/year) <b>15.11.2002</b>
International Patent Classification (IPC) or national classification and IPC Int.Cl. <sup>7</sup> <b>F23C 10/24</b>		
Applicant <b>EBARA CORPORATION</b>		

1.	This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2.	This REPORT consists of a total of <u>5</u> sheets, including this cover sheet.
3.	This report is also accompanied by ANNEXES, comprising: <div style="margin-left: 20px;"> a. <input type="checkbox"/> a total of _____ sheets, as follows: <div style="margin-left: 20px;"> <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <div style="margin-left: 20px;"> <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. </div> </div> </div>
	b. <input type="checkbox"/> a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4.	This report contains indications relating to the following items: <div style="margin-left: 20px;"> <input checked="" type="checkbox"/> Box No. I Basis of the report  <input type="checkbox"/> Box No. II Priority  <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability  <input checked="" type="checkbox"/> Box No. IV Lack of unity of invention  <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement  <input type="checkbox"/> Box No. VI Certain documents cited  <input type="checkbox"/> Box No. VII Certain defects in the international application  <input type="checkbox"/> Box No. VIII Certain observations on the international application </div>

Date of submission of the demand <b>25.02.2004</b>	Date of completion of this report <b>03.08.2004</b>	
Name and mailing address of the IPEA/IP <b>Japan Patent Office</b>  3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan	Authorized officer <b>AKIRA MATSUSHITA</b>	3L 3114
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# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP 03 / 14500

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
  - ☐ publication of the international application (under Rule 12.4)
  - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

- ☒ the international application as originally filed/furnished
- ☐ the description:
- pages \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ the claims:
- pages \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ the drawings:
- pages \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (specify): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (specify): \_\_\_\_\_

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (specify): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (specify): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP 03 /14500

Box No. IV Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

- ☐ restricted the claims.
- ☐ paid additional fees.
- ☐ paid additional fees under protest.
- ☐ neither restricted nor paid additional fees.

2. ☒ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is:

- ☐ complied with.
- ☒ not complied with for the following reasons:

The feature common to all of claims 1 to 12 is a fluidized-bed gasification furnace for gasifying combustibles, comprising:  
a fluidized bed having a substantially rectangular horizontal cross section,  
wherein a circulating flow of a fluidized medium is formed in said fluidized bed, and combustibles supplied to said fluidized bed are gasified to produce gas and char.

However, the feature common is not novel since it is disclosed in document JP 2-147692 A (EBARA CORPORATION), 6 June 1990, claim 1.

Consequently the common feature is not special technical feature within the meaning of PCT Rule 13.2, second sentence, since it makes no contribution over the prior art.

Therefore, the special technical feature of claim 1 relates to incombustibles discharging portions while the special technical feature of claim 11 relates to a freeboard having a substantially circular horizontal cross section. There is no technical relationship among those inventions involving one or more of the same or corresponding technical features.

Consequently, these groups of inventions are not so linked as to form a single general inventive concept.

4. Consequently, this report has been established in respect of the following parts of the international application:

- ☒ all parts.
- ☐ the parts relating to claims Nos. \_\_\_\_\_

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

International application No.  
**PCT/JP03 / 14500**

**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Claims	<u>5, 8, 11</u>	YES
	Claims	<u>1-4, 6-7, 9-10, 12</u>	NO
Inventive step (IS)	Claims	<u>5, 8, 11</u>	YES
	Claims	<u>1-4, 6-7, 9-10, 12</u>	NO
Industrial applicability (IA)	Claims	<u>1-12</u>	YES
	Claims		NO

**2. Citations and explanations (Rule 70.7)**

**D1: EP 1058051 A1(EBARA CORPORATION) 2000.12.06**

**D2: US 5979341 A(EBARA CORPORATION) 1999.11.09**

**Claim 5,11**

The subject matters of claims 5,11 appear to involve an inventive step over the documents cited in the ISR.

None of the documents cited in the ISR disclose that  
a fluidized -bed gasification furnace for gasifying combustibles, comprising: a fluidized-bed having a substantially rectangular horizontal cross section; and a freeboard having a substantially circular horizontal cross section, wherein a circulating flow of a fluidized medium is formed in said fluidized bed, and combustibles supplied to said fluidized bed are gasified to generate gas and char. And it is not obvious for a person skilled in the art.

**Claim 8**

The subject matters of claims 8 appear to involve an inventive step over the documents cited in the ISR.

None of the documents cited in the ISR disclose that  
a fluidized -bed gasification furnace for gasifying combustibles, comprising: a fluidized-bed having a substantially rectangular horizontal cross section, a circulating flow of a fluidized medium being formed in said fluidized bed, and combustibles supplied to said fluidized bed being gasified in said circulating flow of the fluidized medium to produce gas and char; and  
at least one incombustibles discharging portion defined at at least one side of said fluidized bed for discharging the fluidized medium and incombustibles accompanying the fluidized medium, said at least one incombustibles discharging portion being disposed at the lower end of said fluidized bed,  
wherein a fluidized-bed bottom is inclined toward said incombustibles discharging portion and has an end portion connected to said incombustibles discharging portion, said end portion is inclined at 45 degrees or more, and a fluidizing gas is blown into from said end portion.

And it is not obvious for a person skilled in the art.

**Supplemental Box**

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

**Box No. V, item 2:**

**Claim 1-4,6-7,9-10**

The subject matters of claims 1-4,6-7,9-10 do not appear to be novel and to involve an inventive step with respect to D1.

D1 discloses a fluidized-bed gasification furnace for gasifying combustibles, comprising: a fluidized bed is surrounded by furnace walls having a rectangular inner surface in horizontal cross section,

one incombustibles discharging portion provided below a central portion of said fluidized bed which comprises two incombustibles discharging portions at a pair of facing sides of said fluidized bed,

said incombustibles discharging portion provided below a central portion of said fluidized bed,

a fluidized-bed bottom inclined toward said incombustibles discharging portion,

a fluidizing gas supplying apparatus for supplying fluidizing gases having substantially different mass velocities from the inclined fluidized-bed bottom, and

a vertical chute having a fixed length which is substantially vertically disposed and communicates with said incombustibles discharging portion (Column 3 line 46-Column 7 line 26, Figs. 2A, 2B).

**Claim 12**

The subject matters of claim 12 do not appear to be novel and to involve an inventive step with respect to D2.

D2 discloses a fluidized-bed gasification and slagging combustion system, comprising: a fluidized-bed gasification furnace and

a slagging combustion furnace for combusting the gas and char produced in said fluidized-bed gasification furnace and melting ash (column 16 lines 6-25, Fig. 11).